

## WHAT IS CLAIMED IS:

1. A method for mounting a seal in a fuel cell comprising:
  - a membrane electrode assembly formed by holding an electrolyte membrane between a first electrode and a second electrode and having a seal mounting portion;
  - a separator plate layered on both surfaces of the membrane electrode assembly so as to form gas passage; and
  - a frame-shaped separator plate held between the membrane electrode assembly and the separator plate so as to seal the gas passage in air tight;the method comprising:
  - preforming the seal into a predetermined shape;
  - setting the seal at the mounting portion of the membrane electrode assembly; and
  - integrally forming the seal with the membrane electrode assembly.
2. A method for mounting a seal in a fuel cell comprising:
  - a membrane electrode assembly formed by holding an electrolyte membrane between a first electrode and a second electrode;
  - a separator plate layered on both surfaces of the membrane electrode assembly so as to form gas passage; and
  - a frame-shaped separator plate held between the membrane electrode assembly and the separator plate so as to seal the gas passage in

air tight;

the method comprising:

using a hot pressing die having a first die and a second die;

setting the first electrode in the first die;

performing the seal into a predetermined shape and coating an adhesive on a portion thereof with which the electrolyte membrane is contacted;

setting the seal at a circumference of the first electrode in the first die;

layering the electrolyte membrane on the adhesive coated on the seal and the first electrode;

layering the second electrode on the electrolyte membrane; and

close-contacting the first and second electrodes, the electrolyte membrane, and the seal by holding them with the first and second dies, and integrally forming them by hot pressing.

3. A method for mounting a seal in a fuel cell comprising:

a membrane electrode assembly formed by holding an electrolyte membrane between a first electrode and a second electrode;

a separator plate layered on both surfaces of the membrane electrode assembly so as to form gas passage; and

a frame-shaped separator plate held between the membrane electrode assembly and the separator plate so as to seal the gas passage in air tight;

the method comprising:

using a hot pressing die having a first die and a second die;

setting the first electrode in the first die;

preforming the seal into a predetermined shape in a condition in which a reinforcement member is inserted into the seal and an inner portion of the reinforcement member projects inwardly;

layering the seal at a circumference of the first electrode in the first die in a condition in which the inner projected portion of the reinforcement member overlaps with a portion of the first electrode;

layering the electrolyte membrane on the first electrode in a condition in which the inner projected portion of the reinforcement member is held between the first electrode and the electrolyte membrane;

layering the second electrode on the electrolyte membrane; and

close-contacting the first and second electrodes, the electrolyte membrane, the seal, and the reinforcement member by holding them with the first and second dies, and integrally forming them by hot pressing.

4. A method for mounting a seal in a fuel cell comprising:

a membrane electrode assembly formed by holding an electrolyte membrane between a first electrode and a second electrode;

a separator plate layered on both surfaces of the membrane electrode assembly so as to form gas passage; and

a frame-shaped separator plate held between the membrane electrode assembly and the separator plate so as to seal the gas passage in

the method comprising:

- using a hot pressing die having a first die and a second die;
- setting the first electrode in the first die;
- performing the seal into a predetermined shape in which a inner portion thereof projects inwardly;
- layering the seal at a circumference of the first electrode in the first die in a condition in which the inner projected portion of the seal overlaps with a portion of the first electrode;
- layering the electrolyte membrane on the first electrode in a condition in which the inner projected portion of the seal is held between the first electrode and the electrolyte membrane;
- layering the second electrode on the electrolyte membrane; and
- close-contacting the first and second electrodes, the electrolyte membrane, and the seal by holding them with the first and second dies, and integrally forming them by hot pressing.

5. A method for mounting a seal in a fuel cell comprising:  
a membrane electrode assembly formed by holding an electrolyte  
membrane between a first electrode and a second electrode;  
a separator plate layered on both surfaces of the membrane  
electrode assembly so as to form gas passage; and  
a frame-shaped separator plate held between the membrane  
electrode assembly and the separator plate so as to seal the gas passage in

air tight;

the method comprising:

using a hot pressing die having a first die and a second die;

preforming the seal into a predetermined shape and coating an adhesive on a portion thereof with which the electrolyte membrane is contacted;

setting the seal in the first die;

preforming the membrane electrode assembly so as to expose a portion of the electrolyte membrane toward a surface of the membrane electrode assembly;

setting the membrane electrode assembly in the first die in a condition in which the exposed portion of the electrolyte membrane overlaps with the adhesive coated on the seal;

close-contacting seal and the membrane electrode assembly by holding them with the first and second dies, and integrally forming them by hot pressing.

6. A method for mounting a seal in a fuel cell according to claim 2, wherein a reinforcement member is inserted into the seal in a condition in which a portion thereof is exposed, and an adhesive is coated on the exposed portion of the reinforcement member.

7. A method for mounting a seal in a fuel cell according to claim 2, wherein a reinforcement member is inserted into the seal, and an adhesive

is coated on the seal.

8. A method for mounting a seal in a fuel cell according to claim 1, wherein the seal is formed from materials of the elastomer type which require heating for vulcanizing or hardening, or materials of the thermoplastic elastomer type which do not require heating.

9. A method for mounting a seal in a fuel cell according to claim 1, wherein the seal is formed from liquid materials of the cold setting type or the thermosetting type.

10. A method for mounting a seal in a fuel cell according to claim 3, wherein the reinforcement member is a sheet formed from a resin or a metal, or a wire made from a resin or a metal.

11. A fuel cell formed by layering plural membrane electrode assemblies via a separator plate respectively, wherein the membrane electrode assembly is mounted with a seal by a method for mounting a seal in a fuel cell according to one of claims 1 to 10.